

# Understanding the Dynamics of Control and Access to Natural Resources by the “Orang Rimba” Community in Jambi, Indonesia (A Case Study in Air Hitam Sub-Regency)

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*Article*

# Understanding the Dynamics of Control and Access to Natural Resources by the “Orang Rimba” Community in Jambi, Indonesia (A Case Study in Air Hitam Sub-Regency)

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**Abstract:** Forests, as a form of natural resource, play a significant role in the social, ecological, and economic aspects of community life. One of the communities that live in the forest and dependent on the forest is Orang Rimba in Jambi. The objectives of this research are to investigate changes in ownership and access systems of natural resources within the Orang Rimba community, the factors driving these changes, and the impacts of changes in access and control over natural resources on the socio-cultural conditions of the Orang Rimba community. This research was conducted using a qualitative approach. The result of this research shows that the Orang Rimba community has experienced changes in access and control of forest resources. Many factors contribute to these changes, mainly from the Government and market forces. Moreover, these changes bring about some fundamental changes in Orang Rimba's livelihood and even their live in general.

**Keywords:** access and control; forest; livelihood; Orang Rimba; sustainability

## 1. Introduction

Forests, as a form of natural resource, play a significant role in the social, ecological, and economic aspects of community life. Forests have functions that include being a source of livelihood closely tied to the traditional and cultural values of society, serving as a habitat for biodiversity, regulating water systems, preventing erosion, and acting as a climate regulator [1,2]. According to Government Regulation No. 34 of 2002 concerning Forest Management and Forest Management Planning, Forest Utilization, and Forest Area Use, forest utilization encompasses activities involving the use of both timber and non-timber forest products, utilization of forest areas, utilization of environmental services, as well as the collection of both timber and non-timber forest products for community welfare while ensuring their sustainability. Forest utilization, based on its primary functions, can be categorized into three types: conservation forests, protected forests, and production forests [3].

In the era of decentralization, changes in land use and property ownership uncertainties have become the primary causes of agrarian conflicts [4]. Communities have been utilizing forests as sources of livelihood for generations, but their access has become limited due to the emergence of new policies. In the case of the Bukit Duabelas Forest Area in Jambi Province, the establishment of the Bukit Duabelas National Park (TNBD) policy has been deemed to restrict the indigenous Orang Rimba people's access to natural resources. Throughout their history, the Orang Rimba have lived and depended on the forest and its products for their livelihoods [5,6]. The majority of SAD residents

still rely on forest resources for their livelihoods through activities such as gathering and hunting. The results of these activities are partly consumed directly as food and non-food items are sold to fulfill other needs that cannot be met through the forest.

Individuals strive to transform their access claims to resources into legitimate property [7]. If access is understood as the ability to benefit from something through power relations [8], then property is defined as the rights to such valuable things that receive social/public/community recognition and are legitimized by laws and regulations [7,9]. Access, in Ribot and Peluso's definition, entails a "bundle of powers," while property views access as a "bundle of rights." There are several processes in the analysis of access, namely: 1. mapping benefit flows; 2. identifying mechanisms for obtaining, maintaining, and controlling access; and analyzing power relationships that underlie access mechanisms [8].

Tenurial certainty of forests can enhance forest effectiveness and sustainability [10–13]. Landownership rules determine how property rights to land should be allocated within society. Property rights influence decision-making and land use practices [14–17].

In the past (during the clan governance era), territorial control, including the roaming areas of the Orang Rimba, was held by clan governance. Meanwhile, in the current era of governance, granting access space to the Orang Rimba within the Bukit Duabelas National Park area is limited to management rights, but there are no explicit regulations regarding territorial control, especially in cases of individual management. The boundaries of the areas controlled by each group are not clear and precise. This leads to overlapping claims and territorial boundaries between different groups. During the New Order era, the Bukit Duabelas forest area was claimed as state-owned forest land, which was then transferred by the state to private entities. Private entities carried out timber exploitation in the lowland areas where the Orang Rimba reside [5,18]. The Orang Rimba's access to forest resources became even more limited when the areas they used to roam in Jambi Province transformed into oil palm plantations, industrial tree plantations (acacia), forest tenure areas, and transmigration settlements. This indicates that access is a dynamic concept that can be lost, redistributed, and acquired by various actors.

As time has passed, the control and access of the Orang Rimba over natural resources, including forests, have changed. Various socio-cultural changes among the Orang Rimba are closely related to their control and access to forests. Therefore, important and intriguing questions arise: Firstly, what kind of changes have occurred in the ownership and access system of natural resources within the Orang Rimba community, and what are the influencing factors? Secondly, what are the impacts or implications of these changes in access and control over natural resources on the socio-cultural conditions of the Orang Rimba community? Thus, this research contributes to the examination of changes in ownership and access systems of natural resources within the Orang Rimba community, the factors driving these changes, and the impacts of changes in access and control over natural resources on the socio-cultural conditions of the Orang Rimba community.

## 2. Materials and Methods

This study was conducted using a qualitative approach. The study took place in the Air Hitam Subdistrict, Sarolangun Regency, Jambi Province, for 6 (six) months. The studied Orang Rimba community encompassed 6 groups within the Air Hitam area: Temenggung Nagkus Group, Temenggung Nggrip Group, Temenggung Bepayung Group, Temenggung Melayau Tua Group, Temenggung Bebayang Group, and Temenggung Kecinto Group. Data were collected through in-depth interviews with several key informants, including Temenggung (tribal leaders), Tengganai, Mangku, Depati, and Orang Rimba community members. Data analysis was conducted using an interactive method, which included data condensation such as data grouping and sorting, as well as data display and conclusion drawing [19].

### 3. Results and Discussion

#### 3.1. Periodization of Forest Area Control in Bukit Duabelas

The control system of forest resources in the Bukit Duabelas forest area by the Orang Rimba community has changed over time. During the colonial and old-order periods, the forest control system was communal or clan-based. The Orang Rimba community held traditional control over the forest to meet their livelihood needs. They lived through hunting and gathering, constantly moving within the forest area. Nevertheless, they also cleared land for cultivating plantation commodities and upland rice.

In the New Order era, around the 1970s, the forest control system transitioned from communal property to private property [18]. Private entities holding logging concessions (HPH) controlled nearly the entire area surrounding the Bukit Duabelas region [18]. The Bukit Duabelas forest area was declared a state forest, and subsequently, control was transferred from the state to private entities. These private entities engaged in timber exploitation in the lowland areas where the Orang Rimba resided [5,18]. Private control was established through various policy products, such as Law Number 5 of 1967 concerning Basic Forestry Provisions, Government Regulation Number 21 of 1970 concerning Forest Concession Rights (HPH), and Government Regulation Number 18 of 1975 concerning Forest Concession Rights and Forest Product Harvesting Rights (HPHH).

The Orang Rimba community utilizes the forest for food consumption and medicinal resources. However, access to the Orang Rimba community has become increasingly restricted as the forested areas shrink while the population grows. The limitation of resource access for the Orang Rimba community was exacerbated by the introduction of transmigration policies in the years 1980-1985 [18]. Valuable economic trees, including sialang and jernang trees owned by the Orang Rimba community, were felled for settlement areas [18].

During the reform period around the 1990s to the 2000s, the Bukit Duabelas forest area was managed based on clan territories [18]. The Orang Rimba community held collective rights to control and utilize resources within specific areas. There were portions of forest products that needed to be handed over to the sultan through an intermediary called "jenang." Jenang was an individual from the nearest village representing the sultanate to oversee the Orang Rimba and serve as a mediator for forest produce [18]. In return for these forest products, jenang would provide goods to the Orang Rimba [18]. Alongside the clan-based ownership system, concessions for timber exploitation in other areas continued to operate.

With the increasing demand for palm oil exports, the expansion of palm oil plantations grew significantly through government-granted licenses to private entities. In 2009, it was reported that around 2.3 million hectares of Orang Rimba roaming areas in Jambi Province had transformed into palm oil plantations, industrial tree plantations (acacia), forest tenure areas, and transmigration settlements. This resulted in further limited access for the Orang Rimba community to forest resources.

The forest areas in the Jambi region were targeted for HPH exploitation due to their high-value timber with relatively low operational costs [5]. The exploitation of forests to meet market demands led to forest degradation. To prevent worsening forest destruction, the government designated the Bukit Duabelas forest area as the Bukit Duabelas National Park (TNBD), spanning 60,500 hectares, through Minister of Forestry and Plantations Decree No: 285/Kpts-II/2000 dated August 23, 2000. This decree encompassed the Serengam Hilir Permanent Production Forest (11,400 ha), other designated areas (1,200 ha), and the Bukit Duabelas biosphere reserve (27,200 ha) [20]. After the end of the HPH era and the change in status to TNBD, the authority of the Orang Rimba in utilizing the area seemed to gain formal legitimacy. The management authority of TNBD, which was under the BKSDA (Natural Resources Conservation Agency) Jambi at that time, issued a TNBD management plan that also regulated the zoning system. However, this zoning regulation was unilaterally conducted by BKSDA Jambi and did not involve the Orang Rimba community. The absence of recognition of customary rights and the mismatch between governmental regulations and cultural values led to the failure of the forest management system [21,22]. The Orang Rimba community viewed the

establishment of zoning within the TNBD management as restricting their movement, as they were accustomed to living freely and wandering within the forested area of TNBD.

### 3.2. *Regime Ownership Changes*

Resource management regimes constitute the structure of rights and obligations that characterize the relationships among individuals in utilizing resources [23]. Rights are the capacity to obtain benefits through ownership, which is used to control the use of natural resources and determine the interdependencies between specific community groups and others [23]. Claims through ownership rights can be enforced and supported by society and the state through law or convention. Property rights into two categories, based on regime and type of rights [24].

There are four resource management regimes: private property, communal property, state property, and open access [23]. First, the regime of private ownership entails individual ownership where rights to a particular entity are vested in the owner, allowing them to regulate resource usage as they see fit. Second, a communal property regime involves ownership by a specific group of individuals where rights, obligations, and rules are established and applied to members of that group. Third, the regime of state ownership is characterized by ownership rights and regulations established by the state as the authoritative entity. Fourth, the open access regime implies the absence of rules governing rights and obligations. Based on Bromley's (1991) regime typology, the control of the Bukit Duabelas Forest began under the communal property regime and later transitioned to the state ownership regime [23].

Referring to historical times (during the clan rule era), control over territory, including the roaming areas of the Orang Rimba, was held by clan authorities. However, both the clan government and the villagers provided space for the Orang Rimba to sustain their lives within agreed-upon imaginary boundaries. In the past, the Orang Rimba did not have a concept of land ownership or specific land claims. Two factors contributed to this lack of claims: (1) they roamed within vast forested areas, making it unnecessary to own specific parcels of land, and (2) their livelihood depended on hunting and gathering, which required them to move around within the forested region.

The recognition of ancestral territories and land for the Orang Rimba is closely related to the historical past, specifically during the clan-based era. As known, during the clan-based era, the territory was divided into clan territories under the leadership of Pasirah. In the Air Hitam region during the clan-based era, the Orang Rimba occupied a portion of the Air Hitam Clan territory, which was centrally governed from Lubuk Kepyang Hamlet (now Desa Lubuk Kepyang). However, the clan authority provided space for the Orang Rimba to occupy the Bukit Duabelas forest area de facto and granted them the right of "ico pakai" (borrowed use) within the hamlet's territory. Some boundaries should not be violated, and both the village residents and the Orang Rimba adhered to them. This implies that the de facto recognition of ancestral territories and cultivated land for the Orang Rimba in the Air Hitam region has existed since ancient times. The collective ownership regime unites a group of resource users who share collective ownership over a specific area or resource.

As time goes by, the access to and control over these natural resources change. These changes are driven, among other factors, by the growing monetary economy, the development of agricultural systems, and the increasing population. Despite being de jure property of the State, at the community level in Air Hitam, the Orang Rimba are now recognized to have various systems of resource ownership, including individual ownership, collective ownership within extended families (kaum), group ownership (komunal), and open access. Individual ownership encompasses lands used for constructing shelters (pondok), cultivating fields (ladang), planting plantation commodities like rubber and palm oil, vacant lands that are often traded, and abandoned garden lands no longer managed. Collective ownership within extended families refers to inherited lands that remain undivided, making them collectively owned by the heirs, including fields, gardens, and vacant lands (overgrown shrubs).



Group ownership consists of portions of the group's claimed territory, typically encompassing areas for the protection of natural resources that can be utilized by all group members. Under group ownership, users share rights to access natural resources and rely on community-based and state-based authorities to assert their claims [25]. Meanwhile, there are also areas with "open access" (restricted only to the Orang Rimba), namely the land at the Orang Rimba level as a whole, which is freely accessible to any member of the group. Such areas are often used for sustaining their lives during "melangun" (mourning) and hunting.

The state's territorialization of forest areas by granting ownership rights to private entities does not immediately eliminate the rights of the Orang Rimba community to utilize forest resources. The Orang Rimba can still control the forest, although their rights and access are more limited compared to before. Indigenous communities that have long resided in forest areas should have a larger proportion of access to forest resources. Forest management policies that grant concessions to companies not only increase the number of competitors in utilizing forest resources but also drive a shift in the paradigm of resource utilization by village residents towards exploitative practices. Since 1970, village residents have gradually shifted their professions, transitioning from regular farmers to engaging in illegal logging activities, known locally as "bebalok" [26]. Agricultural tasks such as tapping rubber and cultivating oil palm, which were previously the majority occupations, have been abandoned over time due to the perception that illegal logging is more profitable [26]. The practice of exploiting the forest not only endangers the forest itself but also the communities living in the forest areas [27].

### 3.3. Access Mechanisms in the Bukit Duabelas Forest Area

The utilization of natural resources, especially forest resources, is crucial for the livelihood of the Orang Rimba community. A variety of non-timber forest products, both plants and animals, have become essential for meeting their daily needs. Forest products derived from plants within the forest area are used for various purposes, including food consumption, medicinal use, and family income sources. The Orang Rimba community engages in activities such as hunting, fishing, honey collection, and rubber tapping for sale and subsistence. Over time, the community transitioned from hunting and gathering to farming and gardening. Currently, the Orang Rimba community cultivates plants like rubber, oil palm, red ginger, sweet bark, petai, and other plants based on market demand [6]. The Orang Rimba consider all the land there beneficial for their lives, such as "tanoh perano'an" (birthplace), "tanoh bedewo" (worship area), "tanoh begumah" (dwelling place), "tanoh bebalai" (celebration site), "tanoh beumo" (farming area), and "tanoh pasoghon" (burial grounds) [28].

With the passage of time, the Orang Rimba community has become familiar with the concept of land buying and selling. The prices of land transactions among the Orang Rimba vary significantly depending on land conditions and location in relation to accessibility issues. Study results on land prices among the Orang Rimba for different types of land use are as follows:

- a. Cultivated land: Prices range from Rp. 5,000,000 to Rp. 25,000,000 per hectare.
- b. Rubber plantation land: Prices range from Rp. 15,000,000 to Rp. 50,000,000 per hectare.
- c. Oil palm plantation land: Prices range from Rp. 70,000,000 to Rp. 200,000,000 per hectare.
- d. Vacant land: Prices range from Rp. 5,000,000 to Rp. 20,000,000 per hectare.

The diversity in land values as presented above reflects the high prevalence of land buying and selling transactions in the current Orang Rimba life. Although cultivated land holds the highest value, lands for cultivation and vacant lands close to settlement areas (villages) also command high prices. According to informants, most land sales occur between the Orang Rimba and nearby village residents, signifying that land transactions are more common between the Orang Rimba and the surrounding villagers than within the Orang Rimba community itself.

Aside from land ownership, the Orang Rimba also has claims over certain plants. These plants have economic, social, and religious value to the community. Plants with economic value, often accessed by the Orang Rimba, include various types of rattan and trees that produce resins like damar and Balam. Plants with social and religious value include trees used for burials, baby umbilical cord burial, medicinal plants like tenggeris (used for hardening newborns' skulls), and trees believed to

house deities. The “sialang” tree is another forest resource commonly claimed by the Orang Rimba. “Sialang” refers to various trees favored by bees to build hives, including “kedondong hutan,” “pohon balam,” and other tree species. Honey is a significant forest product for both consumption and sale.

Some of the Orang Rimba residents state that in reality, it can be said that there is no longer tree ownership by the Orang Rimba due to the depletion of these trees. The presence of various types of rattan, which once had considerable economic value and served as a reliable source of income, especially the “jernang” (Dragon blood) resin, has become increasingly difficult to find in the forest area. Some plant species that still offer benefits include forest fruits and several types of plants used as ingredients in traditional herbal remedies by the Orang Rimba community.

### *3.4. Access by the Orang Rimba Based on Ownership*

Claims to ownership by individuals, groups, or institutions regarding resources are important in determining rights like passage, utilization, management, and more. Property rights are categorized into five types: access rights, withdrawal rights, management rights, exclusion rights, and alienation rights [24]. Access rights involve the right to enter a designated physical boundary of ownership. Withdrawal rights pertain to the right to obtain products or benefits from a resource. Management rights grant the right to regulate internal usage patterns and modify resources through improvements. Exclusion rights entail the right to determine who gains access rights and how those rights are transferred. Alienation rights refer to the right to sell or lease one or more selected collective rights. Property rights determine the rights an individual holds and can explain ownership status.

In the Bukit Duabelas Forest Area, access granted to the Orang Rimba community mainly revolves around management rights, yet individual resource management, especially the ones involving individual control, remains vaguely regulated. Nevertheless, in the Orang Rimba community, lands they cultivate and claim as their private property are fully controlled and recognized by all parties, making it possible for them to transfer ownership rights at any time. This aligns with Corbera et al.'s [25] assertion that private ownership pertains to a situation where individuals and families hold full rights over land and rely on recognition from others to acknowledge and enforce their property claims. So far, according to informants, various forms of recognition of land ownership among the Orang Rimba are generally upheld by all parties, including Orang Rimba individuals and groups, villagers, and the government.

Property rights owned by the parties will determine a person's position towards resources and influence the motivation to conserve and preserve those resources [24]. In the area of Bukit Duabelas Forest, there are customary protection efforts over tree ownership held by groups and individuals. Protection efforts are marked by the enforcement of customary sanctions for any actions that disturb or damage trees. Property rights also play a significant role in the sustainability of livelihoods dependent on nature within the community [29].

Land tenure security only refers to ensuring rights certainty [30,31]. Formal recognition of land ownership by the Orang Rimba community is known to come from the government in the form of certificates. The search did not find information about the existence of Orang Rimba community members who already have land certificates. Most of the land controlled by the community is within the Bukit Duabelas National Park. The government's recognition of land ownership is reflected in (1) the Orang Rimba community is not prohibited from managing land for cultivation both within the forest and non-forest areas; (2) the government, through the management of the Bukit Duabelas National Park, has provided access to manage the area, especially in the traditional use zone and family sites. Some plant species, the products of which are extensively used by the Orang Rimba, are also individually owned. Individual ownership simultaneously represents a form of access restriction; in this case, each Orang Rimba community member cannot access certain plants claimed individually without permission from the claimant. Actual rights and utilization practices will continue to experience dynamics when legal rights change [32].

There are approximately 6 groups scattered in the Air Hitam region, namely the Temenggung Nangkus group, Temenggung Nggrip group, Temenggung Bepayung group, Temenggung

Bebabayang group, Temenggung Melayau Tua group, and Temenggung Kecinto group. This grouping of the Orang Rimba is closely related to territorial claims. The study's findings show that each group claims its own territory. However, the boundaries of the territories controlled by each group are not clear and precise. This leads to overlapping claims and boundaries between different groups. Indeed, the clarity of ownership plays a crucial role in achieving sustainable forest resource management [22].

In the case of the Bukit Duabelas Forest area, communal ownership that effectively maintains resource utilization balance is under significant pressure due to the increasing human population. As a result, individual ownership becomes an alternative. This aligns with Cox and Hall's statement [33] that trust and cooperation in management are higher in individual or private ownership compared to communal ownership.

This study found that only the Temenggung Kecinto group claims no individually owned trees. All types of trees commonly accessed by the Orang Rimba community in the Temenggung Kecinto group are claimed by the group collectively, and every group member has equal access rights. Trees that are not cultivated individually are under group ownership. Individually owned trees only consist of species that are individually cultivated.

Group ownership involves shared ownership among the Orang Rimba community members, where each member of the group has equal access rights to all types of trees claimed by the group. This access includes harvesting resources for livelihood and even for selling as a source of income for the family. Over time, this tree ownership system becomes the basis for Orang Rimba members to claim ownership of the land where these trees are located. This has become a new consensus in the Orang Rimba's land ownership system.

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Regarding claims of tree ownership, both on a group and individual basis, in the perspective of Orang Rimba customary law, it is still a subject of debate. Some state that it is grounded in customary law, while others argue that it isn't. The formal recognition of tree ownership, whether by groups or individuals, is not specifically regulated in Orang Rimba customary law. Customary protection over tree ownership held by groups and individuals is manifested through the enforcement of customary sanctions for any actions that disturb or access products from the trees without permission from the owners.

For the Orang Rimba community, ownership claims are made in various ways, including (1) waving, marking with specific symbols known by other Orang Rimba as a form of recognition of tree ownership; (2) caring for and cleaning the area around the tree claimed; (3) for sialang trees, installing "lantak" which is a peg for stepping on when climbing the tree to collect honey; (4) passing down the information across generations. These forms of claims are recognized by the Orang Rimba community so far, both within their group and among different groups, including the surrounding village residents.

### *3.5. Access to the Orang Rimba based on Power*

Each stakeholder has varying access or capability to obtain benefits according to the power they possess. Access is not only acquired through ownership rights but can also be obtained through structural and relational means. Structural and relational access is gained through a bundle of power used to gain access, maintain access, and control benefits. The bundle of power into eight powers: technology, capital, markets, labor, knowledge, authority, social identity, and social relations [8]. The access mechanism is understood as a tool, process, and relationship among stakeholders to obtain, control, and maintain their access to resources through the bundle of power they possess [8].

The Orang Rimba gained access through the powers of capital, markets, social identity, authority, and social relations. Looking at their ownership mechanisms, individually owned lands



are quite diverse, including forest clearing, inheritance, purchase, lease, and pledge. The practice of forest clearing for land ownership was formerly the most dominant practice among the Orang Rimba. This practice is found across all Orang Rimba groups. The development of forest clearing practices by the Orang Rimba was influenced by technological power and knowledge of cultivation and plantation techniques. Prior to the development of land clearing for cultivation and plantation, the Orang Rimba did not have a system of individual land ownership as they lived as nomads for hunting and gathering. The pattern of forest clearing by the Orang Rimba differs from that of the village residents. Some individually owned lands are obtained through inheritance. This indicates that the pattern of individual land ownership among the Orang Rimba has been known and practiced for generations. This is evidenced by the existence of land that has been passed down through generations.

The ownership of capital and markets influences the land ownership system among the Orang Rimba. Land ownership patterns through transactions of buying, selling, leasing, and pledging are aspects of changing land ownership patterns driven by a money-based economic system. Lands acquired through buying, leasing, and pledging are generally obtained from fellow Orang Rimba members within the group, and only a small portion is acquired from members of other groups. The process of land transactions through buying and selling was formerly forbidden and considered a violation of customary law. Those who disobeyed this prohibition were subject to customary sanctions, categorized as severe breaches of customary law. Due to various pressing reasons, this prohibition on land transactions could no longer be enforced.

Authority and social identity also influence how the Orang Rimba obtain and maintain access. Customs has authority over granting recognition of roaming space. This recognition is stated in customary law as "what's inside does not disturb what's outside, and what's outside does not disturb what's inside." This means that the Orang Rimba do not disturb things that are the rights of village residents, and vice versa, village residents do not disturb things that are the rights of the Orang Rimba within agreed-upon boundaries. For village residents, the area understood as the Orang Rimba's roaming space is the Bukit Duabelas Forest, which is now designated as the Bukit Duabelas National Park. Furthermore, individual land ownership doesn't only occur within the internal group's territory but also extends to other groups' territories, village territories, and state land. However, individual land ownership outside the internal group's territory remains relatively small in number. Lands outside the group's territory are acquired through inheritance, purchase, tree claims, and forest clearing. Some group members inherit land within other group territories because their parents were from those groups. Subsequently, when these inheritors marry, they move to other groups.

Two patterns related to land ownership within other group territories were identified. First, an individual clears land in their own group territory and then changes their group membership status to another group, and the land they obtained through clearing remains recognized as their ownership. Second, an individual clears land within another group's territory with the approval of the chief who claims authority over the opened territory. Cross-group access to land is obtained through social relational power, by clearing land with the chief's approval. For any Orang Rimba member seeking to have access and control of land across group territories, building a relationship with the chief to obtain land access approval is necessary.

Orang Rimba who have access to land within their claimed territories have the ability to control access. Access control is marked by the ability to engage in land sales, lease systems, pledges, and claims for compensation in case of damaging activities. Land sales, lease systems, pledges, and claims for compensation are performed to transfer land rights to external parties. Lands transacted through the lease system among the Orang Rimba are generally used for cultivation. If someone needs money and does not want to sell their land, they can lease it to someone else for a specified period. The value of land leases depends on negotiations based on the projected production yields from the plot. Similarly, in the pledge system, lands usually pledged are cultivated lands. The difference from the lease system is that if the landowner cannot repay the pledged amount within the agreed time frame, the land will permanently transfer to the possession of the pledge holder. The access mechanism of the Bukit Duabelas Forest owned by the Orang Rimba can be summarized in Table 1.

Table 1. Access Mechanism of the Bukit Duabelas Forest Area.

Era	Benefit Stream	Orang Rimba Access Mechanism			Access Type
		Obtain	Defend	Control	
Before the reform period	Utilization of non-timber forest products for the consumption of food, medicine, and family income sources through hunting and gathering activities.	Land tenure is most dominant by clearing forests.	Create stub boundaries and open up spaces to be planted with commodities	There is customary law that regulates land use within agreed boundaries, the process of land sale and purchase transactions at the Orang Rimba level is not allowed	Social identity, and authority
Reformation period	Utilization of non-timber and timber forest products through farming and gardening activities.	Land tenure is diverse by clearing forests, inheritance, buying, renting, and holding pawns	The existence of a tree tenure system in the past which is now inherited and used as the basis for land tenure claims	Access control is characterized by the ability to hold land sales and purchases, lease systems, liens, and prosecute compensation if there is destructive activity.	Capital, markets, social identity, authority, and social relations.

The changes in land ownership systems in the Bukit Duabelas Forest area are attributed to the development of economic perspectives, livelihood needs, the increasing scarcity of resources, and policy decisions. Ownership rights can change recognition in line with changes in political, social, cultural, and technological systems. First, the growing economic perspective is that everything has economic value and everyone strives to acquire things considered to have economic value, including inherited land. The Orang Rimba community practices land buying, pledging, and leasing. Land buying and selling have been practiced for a long time, although customarily, land transactions used to be categorized as a severe breach of customary law because land held a significant role in the lives of the Orang Rimba.

The increasing demands for economic needs, economic pressure, situational incidents, and practical necessity costs that cannot be supported by existing income sources are triggering factors for the emergence of land buying and selling practices in the lives of the Orang Rimba. Some dominant situations that are the main reasons for Orang Rimba members to engage in land buying and selling transactions are to cover the costs of marriage and the purchase of motorcycles, in addition to other reasons such as the cost of living, children's education, medical expenses, customary fines/debts, and even expenses for pilgrimage to holy lands for those who have converted to Islam.

Another cause is the increasing scarcity of natural resources, which leads to a decrease in access to natural resources. This causes a higher competition for land ownership. When the population increases while resources become scarcer, it encourages claims of ownership over resources and the establishment of rules governing ownership and access. The aspect of scarcity of forest resources that are increasingly unreliable for sustaining livelihoods has led to changes in choices of settlement locations, production patterns, and even their belief systems. Choosing to live in villages, and integrating into village life is partly because some of them believe they can no longer sustain their lives in the forest, in addition to external pressures resulting from social and cultural exchanges through social interactions with village communities and development policy pressures through settlement programs for the Orang Rimba. Some Orang Rimba members have started developing farming systems by managing horticultural commodities, rubber, and oil palm, which are also related to the aspect of forest resources that they perceive as insufficient for their families' livelihoods. Some Orang Rimba members who choose to settle in villages have also adopted religions and abandoned their previous beliefs in animism and dynamism [34,35].

Changes in forest ownership systems are not exempt from policy influences. The designation of the Bukit Duabelas Forest area as a Biosphere Reserve intended for the Orang Rimba's living space is considered a relevant political decision that provides de jure recognition of living space for the Orang Rimba. The transition of the Biosphere Reserve area to a National Park has blurred the Orang Rimba's rights to the existence of land and natural resources within it.

The policy has also granted access to natural resources that can support the livelihoods of the Orang Rimba through changes in the zoning management system of the Bukit Duabelas National Park, which is parallel to the Orang Rimba's customary management system by the authorities of the Bukit Duabelas National Park. However, this policy has not explicitly stated the recognition of territorial ownership as a region for the implementation of governance systems and living for the Orang Rimba, so some Orang Rimba members still develop territorial claims to parts of the village and the Business Use Rights (HGU) of companies. Clarifying ownership rights plays a crucial role in achieving sustainable forest resource management [22]. This is because ownership affects land use choices and practices, according to Brown and Okida [16,17]. Clarity of rights can be obtained through legal recognition, and clarity of access can be obtained through zoning systems at the operational level. Changes in land ownership systems in the Bukit Duabelas Forest area can be summarized in Table 2.

Table 2. Changes in the Land Ownership System in the Bukit Duabelas Forest Area.

Category of changes	Colonial Era and Old Order	New Order Era	Reformation Era
Ownership Regime	Tenure is governed by clan ( <i>communal property</i> )	Tenure is regulated by the state ( <i>state property</i> )	The system of tenure varies more according to the territory. There is state control, individual control, joint control of the extended family (race), group control (communal), and open access
Orang Rimba ownership rights	Access, utilization, and management rights	Access, utilization, and management rights	Rights of access, utilization, management, and transfer
Access through power	Access through power, social identity, and authority	Access through power, social identity, and authority	Access through capital power, markets, social identity, authority, and social relations
Settlement pattern	Nomadic	Semi-nomadic	Sedentary and semi-sedentary
Livelihood	Hunting gathering	Working on products Non-timber forests for food and medicine consumption	Oil palm and rubber plantation farmers

3.6. Impact of Changes in Area Control System

The occurrence of changes in the control system of the Bukit Duabelas Forest area has impacts on social, economic, political, and environmental aspects. Since the transition from clan to village, where clan areas were divided into several village areas, the Bukit Duabelas Forest area was managed as a Timber Concession (HPH) area. This situation blurred the de facto recognition of the villagers towards the livelihood and wandering territory of the Orang Rimba, which had previously been well protected. The establishment of imaginary boundaries during the clan period between the village communities' managed areas and the wandering territory of the Orang Rimba is no longer recognized. The impact is the emergence of horizontal and vertical conflicts between the Orang

Rimba versus the HPH concession-holding companies and between the Orang Rimba and the village communities [36]. There are also latent conflicts [28].

In an effort to protect the existence of the Orang Rimba from the desperate situation of resource competition, particularly forest resources, the Bukit Duabelas Forest area was designated as a Biosphere Reserve, which was officially stated in the designation decree as being intended for the livelihood space of the Orang Rimba. This formal recognition of the Orang Rimba's customary territory explicitly declares that the Bukit Duabelas Forest area is intended for the livelihood of the Orang Rimba, not only in the Air Hitam area but for all Orang Rimba who have lived and roamed within the Bukit Duabelas Forest area since ancient times.

Subsequently, the Bukit Duabelas Forest area, previously designated as a Biosphere Reserve, was changed to the status of Bukit Duabelas National Park, which was managed according to the established standards for national park management. Although the presence of the Orang Rimba was considered in its designation, the practical management no longer allows the Orang Rimba the freedom to reside, wander, and sustain their livelihoods in the Bukit Duabelas Forest area, particularly in accessing natural resources traditionally used for subsistence. This situation led to conflicts between the Suku Anak community and the Balai KSDA, the authority managing the Bukit Duabelas National Park at its inception.

Prior to the introduction of land ownership systems, the Orang Rimba never imposed restrictions on anyone conducting activities within the forest area where they carried out their way of life. However, when these activities damaged trees that they considered their own, they demanded compensation in the form of customary fines according to the level of damage inflicted. Moreover, the development of private ownership systems resulted in the emergence of land transactions among the Orang Rimba, which were previously prohibited and considered a severe customary offense. The first instance of land sale was undertaken by Ngukir, which subsequently prompted other Orang Rimba to sell land due to perceived economic benefits [26]. Several research findings explain that since the granting of concession permits and the conversion of forests into plantations, mining, and transmigration areas, changes occurred in the local knowledge of the Orang Rimba in utilizing their livelihood resources, such as the proliferation of forest clearing practices through agricultural and plantation techniques [5,37,38].

Land ownership claims are not explicitly depicted in the lives of the Orang Rimba people. Some places that are revered as entities by the Orang Rimba include special locations like "*tanah pronokon*" (birthplace), "*hutan dewo*" (a place for worship and meeting with deities), and "*hutan balai*" (a gathering place). The existence of these places is respected not based on claims, but rather on their significance as entities for the Orang Rimba group. Various situations faced by the Orang Rimba community, which lead to changes in their way of life through social interactions with different elements of society, especially with village residents, bring about fundamental changes in the agrarian structure within the lives of the Orang Rimba.

Changes in social life organization, such as the emergence of shifts in values regarding customary fine payments and marriage proposals, all of which now demand money as the measurement, are driving an increasing need for quick acquisition of money. One of the ways they understand to obtain money swiftly is by clearing the forest and then selling it for immediate cash. In the past, customary fines and marriage proposals were evaluated in terms of cloth, but nowadays, almost everything is assessed in terms of money, which is no longer equivalent to the amount of cloth, as stipulated by the customary law of the Orang Rimba. Therefore, the existence of land has become increasingly crucial for the Orang Rimba. In relation to this, the emergence of land ownership being developed by the Orang Rimba also serves as a new mechanism within the agrarian structure. Although not constructed by customary law, it has become a sort of consensus accepted by various parties in the form of recognition of land ownership by the Orang Rimba.

The expansion of the monetary economy impacts the Orang Rimba's awareness of the importance of owning assets, including land as capital. The realization that traditional practices of gathering and hunting are becoming less dependable is prompting them to shift their production patterns to agricultural cultivation. Land becomes crucial for those who have embraced agricultural



cultivation as their primary mode of production. The awareness of the significance of land in their lives is also driven by the gradual infiltration of materialistic ideologies into their lives, fostering various new needs that cannot be fulfilled solely by accessing forest resources and agricultural products. The drive for the Orang Rimba to possess vehicles such as motorcycles and other electronic goods is fulfilled through a shortcut – selling land.

#### 4. Conclusions

Over time, the control over the Bukit Duabelas forest area has undergone changes, which in turn has led to shifts in the access and control of the Orang Rimba community over its natural resources. During the clan era, the Bukit Duabelas forest area was communally controlled by clans. At that time, the Orang Rimba were granted the right to borrow (*ico pakai*) within the Bukit Duabelas forest area. Since the New Order era, this area has become state-owned, and since the year 2000, it has been designated as the Bukit Duabelas National Park. Although de jure, the Bukit Duabelas National Park now belongs to the state, at the community level of the Orang Rimba in Air Hitam, several systems of natural resource ownership are recognized, including individual ownership, extended family (*kaum*) ownership, group (communal) ownership, and open access.

These changes are driven, among other things, by the increasing expansion of the monetary economy and cultivation systems, as well as the growth of the *ketemenggungan* system. The development of individual ownership practices is also influenced by technology and knowledge of cultivation and farming techniques. Before the expansion of land clearing for cultivation and farming, the Orang Rimba did not have an individual land ownership system as they lived as nomads for hunting and gathering.

Another cause is the increasing scarcity of natural resources, leading to a reduction in access to these resources. This has resulted in heightened competition for land ownership. The growing population and the scarcity of natural resources have prompted claims of ownership over these resources. The aspect of scarcity of forest resources that are no longer reliable for sustenance has driven changes in their choice of settlement, production patterns, and even their belief systems.

The changes in the land ownership system of the Bukit Duabelas forest area have impacts on social, economic, political, and environmental aspects. With the shift from communal ownership to state ownership of the Bukit Duabelas forest area, the state has the authority to determine the utilization of this forest area. The granting of permits by the government to private companies for timber extraction, for instance, has led to horizontal and vertical conflicts between the Orang Rimba and the companies holding logging concessions, as well as between the Orang Rimba and the villagers.

Furthermore, the designation of the area as the Bukit Duabelas National Park has resulted in the Orang Rimba losing the freedom to reside, roam, and sustain their lives within the Bukit Duabelas forest area. Their access to natural resources for sustenance has also become increasingly limited. This has led to conflicts between the Orang Rimba and the Balai KSDA, which holds the authority over the management of the Bukit Duabelas National Park.

At the community level itself, with the introduction of individual ownership systems, the Orang Rimba community has come to understand land sales and purchases. Previously, transactions involving the buying and selling of land were prohibited and considered a violation of customary law. Those who disregarded this prohibition would face customary sanctions, categorized as severe customary violations. However, due to various pressures and the need for livelihood, the prohibition against land transactions is no longer enforceable.

Finally, it can be concluded that the sustainability of Orang Rimba's livelihood and even their existence are threatened both by government policy as well as corporate/market penetration. Therefore, it is very important to find out the best scenario for empowering the Orang Rimba to face these challenges.

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